TAXONOMY OF CHAETADELPHA (COMPOSITAE: CICHORIEAE)

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Chaetadelpha is a monotypic genus endemic to the western edge of the Great Basin region of the western United States. Stebbins (1953) included the genus in his subtribe Stephanomerinae. Although *Chaetadelpha* has been merged with *Stephanomeria* (Macbride, 1922), it appears to be more closely related to *Lygodesmia* than to other members of subtribe Stephanomerinae. More specifically *Chaetadelpha* resembles *Lygodesmia juncea* in habit and characters of the involucre and florets. In fact, *C. wheeleri* is frequently misidentified as *Lygodesmia juncea. (L. juncea,* primarily a Great Plains species, is rare west of the continental divide.)

Only one chromosome count ($2n = 18$) has been reported for *Chaetadelpha* (Stebbins et al., 1953). The perennial species of *Lygodesmia* also have $2n = 18$ (Tomb, 1970), whereas all species of *Stephanomeria* counted to date have $2n = 16$ or $2n = 32$ (Stebbins et al., 1953; Tomb, 1970; Gottlieb, personal communication).

The pollen grains of *Stephanomeria* and *Chaetadelpha* are similar, being echinate and tricolporate. *Lygodesmia* pollen is echinolophate and tricolporate. The fine structure of pollen in these genera and other members of subtribe Stephanomerinae will be discussed in detail in another publication (Tomb, Larson, and Skvarla, in preparation).

Table 1 and the following description are intended to clarify the generic limits of these genera and to aid in the identification of *Chaetadelpha wheeleri.*

Chaetadelpha wheeleri Gray ex Watson, Am. Naturalist 7:301. 1873.
Stephanomeria wheeleri Nelson & Macbride, Contrib. Gray Herb. 2.65:45–46. 1922.
Illustration: Rothrock, J. T. 1878. U.S. Geographical Surveys West of the 100th Meridian. VI Botany. Plate XV. Government Printing Office, Washington.

Herbaceous, rhizomatous perennials, 18–40 cm high; from deep seated rootstocks; stems ascending to sub-erect, intricately branched, striate, glabrous; leaves 0.3–5.0 cm long, 2–4 mm wide, linear to linear–lanceolate or reduced to scales, lacking a prominent midrib, often deciduous; heads terminal, 5-flowered; involucre cylindrical, 1.1–1.4 cm long, 3–4 mm wide; principal bracts 5, margins hyaline, apices ciliate; outer bracts in about 2 series 2–4 mm long, forming a calyculum; ligules 6–9 mm long, ca 3 mm wide, before drying, sordid pink to white, exserted from

Table 1. A Comparison of the Principal Differences Between Chaetadelpha, Lygodesmia and Stephanomeria

Lygodesmia (8 species)	*Chaetadelpha* (1 species)	*Stephanomeria* (ca 18 species)
perennial*	perennial	10 perennials, ca 8 annuals
pappus of numerous fine, capillary bristles	pappus of two types of bristles; many fine, capillary bristles and 5 rigid, thick, tapering bristles	pappus usually of few to numerous plumose bristles (capillary in two species)
achenes sub-cylindrical; basal ⅔ usually expanded abaxially, surface either striate or smooth or rugose on the adaxial surface; 1.0–1.8 cm long	achenes columnar with 4 or 5 prominent ridges; 0.9–1.2 cm long	achenes columnar, or prismatic; striate, and/or rugose; abaxial and adaxial surfaces not differentiated; 0.5–0.8 cm long
pollen grains echinolophate, tricolporate	pollen grains echinate, tricolporate	pollen grains echinate, tricolporate
cotyledons elongate, filiform after germination often elongating to over 7 cm	cotyledons elongate, filiform after germination (Gottlieb, personal communication)	cotyledons after germination short and spatulate, rarely over 2.5 cm in length
chromosome base number, $x = 9$	chromosome base number, $x = 9$	chromosome base number, $x = 8$

* *Lygodesmia exigua* and *L. rostrata* are considered distinct from *Lygodesmia. L. exigua* is placed in the monotypic genus *Prenanthella* Rydb. (Tomb, 1970), and *L. rostrata* appears to be closer to the genus *Crepis* than to any taxon in subtribe Stephanomerinae.

the involucre ca 7 mm, apparently persistent for several days; corolla tube 7–9 mm long; anthers 5–9 mm long, exserted 2–4 mm out of the corolla tube; style branches 3–4 mm long; achenes 9–12 mm long, ca 1 mm wide, columnar, glabrous, with 5 prominent ridges, truncate at each end; pappus 9–12 mm long, of two types of bristles, the 5 bristles above the ridges of the achene thicker and more rigid than the numerous fine capillary bristles (at least some of the latter fused to each of the rigid bristles); pollen grains echinate, tricolporate, mean equatorial diameter 52 μ; chromosome number **2n = 18.**

Lectotype: Southern Nevada. Lt. Wheeler's expedition. 1872. *Wheeler s.n.* GH! Isotype US! The type locality is given as "southern Nevada on the borders of Arizona" by Gray (1874).

Distribution: Western edge of the Great Basin, southeastern Oregon, western Nevada and adjacent eastern California (Mono and Inyo counties); sand dunes and sandy soils with *Atriplex confertifolia,* ca 3,000 to 6,000 ft. Figure 1.

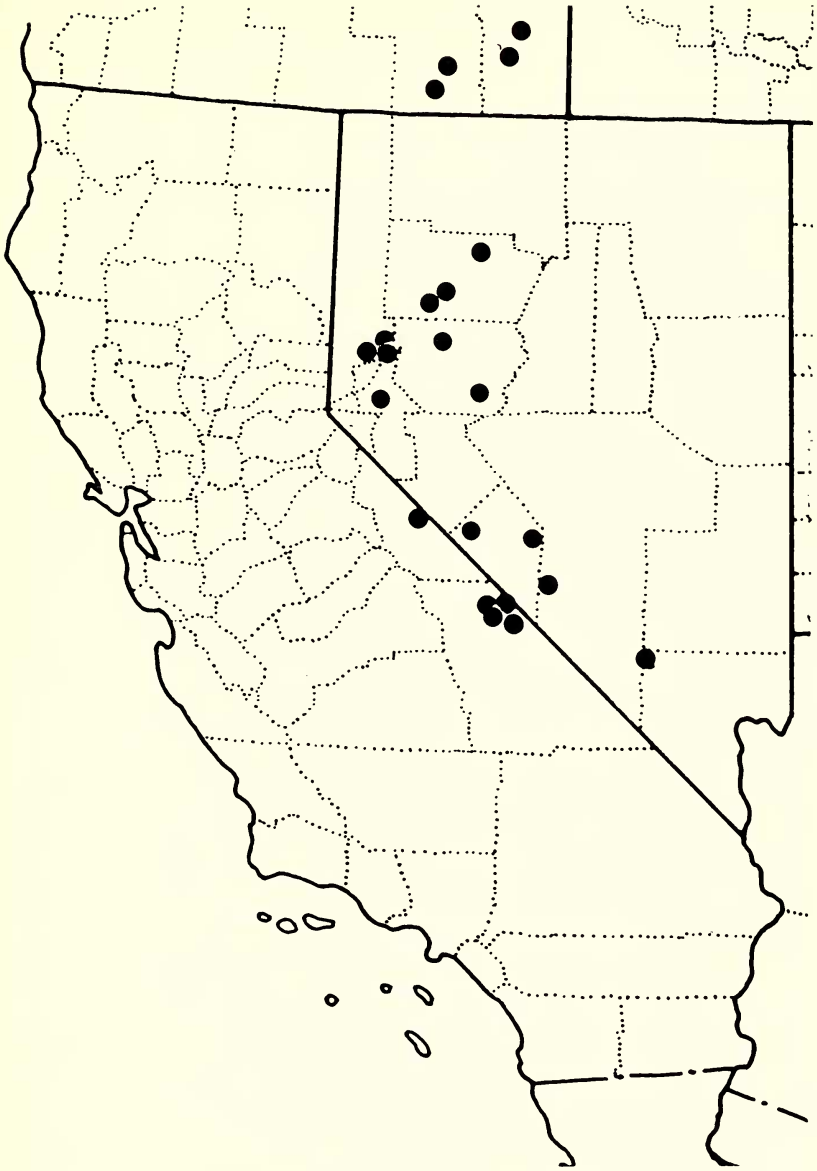

FIG. 1. Distribution of *Chaetadelpha wheeleri*.

Representative specimens: CALIFORNIA: Inyo County: W side of Eureka Valley at mouth of Marble Canyon, 13 May 1955, *Roos 6364* (CAS,DS,NY,US); Shealy, 16 June 1933, *Duran 3486* (ARIZ,CAS,DS,GH,NY,UC,US,UT).

NEVADA: county unknown: Unionville Valley, Jun 1864, *Watson 706* (NY). Churchill Co.: Carson Sink Region, Oct 1907, *Kennedy 1704* (ARIZ,DS,NY,UC,US). Esmeralda Co.: SW of Columbus Salt Marsh, 15 May 1941, *Eastwood & Howell*

9509 (CAS). Candelaria, Jun 1888, *Shockley s.n.* (DS,NY,UC). Lyon Co.: Pine Grove Hills, 25 Jun 1947, *Alexander & Kellogg 5322* (DS,SMU,UC,UTC). Mineral Co.; Rhodes, 23 Jun 1882, *Jones 3951* (CAS,DS,NY,UC,US). Nye Co.: 30 mi S of Goldfield, 24 May 1945, *Maguire & Holmgren 25172* (ARIZ,CAS,DS,NY,PH,SMU, TEX,US,UTC). Pershing Co.: Lovelock, 1 Jun 1933, *Train 55* (US); 25 mi SW of Winnemucca, 22 Jun 1959, *Cronquist 8537* (CAS,DS,KANU,NY,TEX,UC,UT). Washoe Co.: 7 m N of Wadsworth, 29 Jun 1938, *Archer 6194* (ARIZ,DS,NY,PH,UC).

OREGON: Harney Co.: Alvord Desert, 30 Jun 1896, *Leiberg 2429* (GH,NY,UC, US). Malheur Co.: 4 mi W of Rome, 8 Jun 1944, *Ripley & Barneby 6161* (CAS,NY).

Literature Cited

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NOTES AND NEWS

Fasciation in Redwood.—The Centralized Title Service provided by the Commonwealth Forestry Bureau, Oxford, England, has cited a recent note in Madroño (Becking, R. W., Madroño 20:382–383. 1970) which discussed fasciation in redwood [*Sequoia sempervirens* (D. Don) Endl.]. The card incorrectly states that "only two occurrences (of fasciation) on this species are so far known".

For this reason I want to correct errors promulgated by Becking's note. First, Becking wrote that "fasciation has not yet been reported on coastal redwood". Yet a cursory review of literature shows that this phenomenon was described more than 70 years ago (Peirce, G. J., Proc. Calif. Acad. Sci. 3rd Ser. Bot. 2:85–105. 1901). Second, although not common, fasciation in redwood is not, as Becking called it, "very rare". In 1910, W. L. Jepson (The silva of California. Mem. Univ. Calif. 2, 1910) reported that "fasciation of stump sprouts in redwood has also been observed a number of times". The first time I saw fasciation in redwood was in 1932 at Cazadero, California. Third, the statement that "fasciation is sometimes only of annual duration" is misleading. J. S. Boyce (Forest pathology. New York and London: McGraw-Hill Book Co., Inc. 1938) reported that this kind of "malformation is usually confined to the growth of one season; perennial fasciation is rare".

Furthermore, some of Becking's speculations on the causes of fasciation seem to be without scientific bases. His contention that fasciation "is considered to be genetically controlled by a mutation, which can be propagated vegetatively and which may come true from seed" is not supported by any evidence. His statement should be documented if he has evidence. That fasciation in redwood is caused by "wound stimulation", and specifically by insect attack, is remote. Fasciation in sweet peas is known to be induced by bacteria (Tilford, P. E., Jour. Agr. Res. 383–394. 1936), and in some cases its occurrence in other plants has been attributed to local over-nutrition (Boyce, J. S., Forest pathology. New York and London: McGraw-Hill Book Co., Inc. 1938). Since examples of fasciation have been found on redwood sprouts that are nurtured by well-developed root systems of logged parent trees, over-nutrition seems a likely cause of fasciation in redwood sprouts. However, the causes of most fasciations are unknown. Since only occasional stems are affected, the subject is academic only.—Douglass F. Roy, Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Berkeley, Calif., stationed at Redding, California 96001.